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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,832	06/08/2005	Hyoung-Joo Cho	0630-2339PUS1	8644
2292 7590 04/10/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER HOPKINS, ROBERT A				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
04/10/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/537,832

Applicant(s)

CHO ET AL.

Examiner

Robert A. Hopkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/55/08)
Paper No(s)/Mail Date 6-8-05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Helming(3049343).

Helming teaches a dust separator of a cyclone type cleaner comprising a first dust separator(2) connected to a suction pipe(see figure 1), for separating dust from air by a centrifugal force for the first time, a collecting container(1) connected to a lower portion of the first dust separator and in which the dust separated in the first dust separator is collected, and a second dust separator(3) connected to an upper portion of the first dust separator, for suckign air passed through the first dust separator and for separating dust from the air by a centrifugal force for the second time.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 is rejected under 35 U.S.C. 102(e) as being cleanly anticipated by Park et al(6746500).

Park et al teaches a dust separator of a cyclone type cleaner comprising a first dust separator(2) connected to a suction pipe(see figure 1), for separating dust from air

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by a centrifugal force for the first time, a collecting container(1) connected to a lower portion of the first dust separator and in which the dust separated in the first dust separator is collected, and a second dust separator(3) connected to an upper portion of the first dust separator, for suckign air passed through the first dust separator and for separating dust from the air by a centrifugal force for the second time.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Helming(3049343) or Park et al(6746500).

Helming and Park et al teach all of the limitations of claim 2 but is silent as to wherein the first dust separator is formed as a hopper of which an inner diameter becomes narrower toward a lower portion of the hopper and an upper portion of the first duct separator is connected to a connection pipe. Examiner respectfully submits that hoppers for cyclone separators having a gradual narrowing toward a lower portion of the hopper are well known, and therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a gradually narrowing hopper in order to increase the efficiency of the collection of the separated dust from the first separator of Helming and Park et al.

Allowable Subject Matter

Claims 3-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 3 recites "wherein the second dust separator comprises: a dust separating container connected to the first dust separator by a connection pipe; an impeller rotatably disposed inside the dust separating container, for forcedly rotating the air sucked therein through the connection pipe; and a circulation pipe connected to an outer side of the dust separating container, for re-sucking the dust separated in the dust separating container into the first separator". Helming teaches a circulation pipe connected to an outer side of the dust separating container, for re-sucking the dust separated in the dust separating container into the first separator, but fails to teach an impeller rotatably disposed inside the dust separating container, for forcedly rotating the air sucked therein through the connection pipe. Park et al fails to teach an impeller rotatably disposed inside the dust separating container, for forcedly rotating the air sucked therein through the connection pipe; and a circulation pipe connected to an outer side of the dust separating container, for re-sucking the dust separated in the dust separating container into the first separator. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide wherein the second dust separator comprises: a dust separating container connected to the first dust separator by a connection pipe; an impeller rotatably disposed inside the dust separating container, for forcedly rotating the air sucked therein through the connection

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pipe; and a circulation pipe connected to an outer side of the dust separating container, for re-sucking the dust separated in the dust separating container into the first separator because neither Helming nor Park et al suggest such a modification. Claims 4-7 depend on claim 3 and hence are also allowable upon incorporation of claim 3 into claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm, every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Rah

April 1, 2008

/Robert A Hopkins/

Primary Examiner, Art Unit 1797